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**FLORIDA
AGRICULTURE**



AQUACULTURE

Corrected copy: Oysters, page 3.

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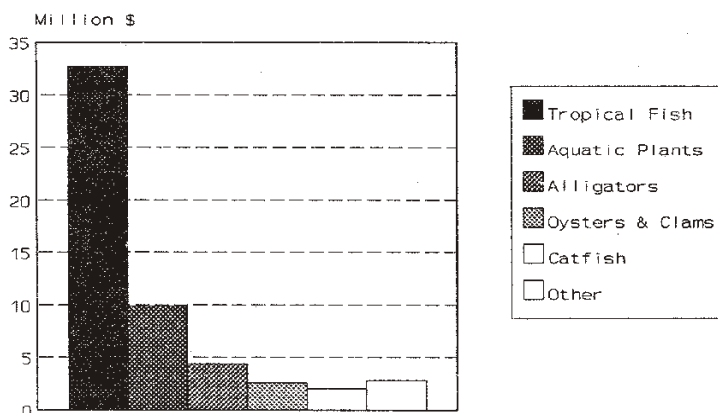
FLORIDA AQUACULTURE SALES TOTAL \$54 MILLION IN 1991

Results of a recent survey conducted by the Florida Department of Agriculture revealed that Florida growers sold \$54 million in aquacultural products during 1991. This compares with \$51 million shown by a similar survey in 1989 and \$35 million in 1987. There were about 8,100 acres of land, including water surface area, devoted to aquacultural production in 1991. This was the same as reported in 1989. Aquatic species identified in the survey were tropical (ornamental) fish, catfish, alligators, oysters, clams, sport and game fish, crawfish, eels, tilapia, other shellfish, aquatic plants, and other minor aquatics. The value is based on farm gate sales of aquatics produced by Florida growers and excludes harvest from open waters or the wild. Growers sold another \$7.1 million worth of tropical fish which they imported for immediate resale. All statistics shown in the tables are for net Florida production and value and exclude imports and purchases from other producers for immediate resale. The sluggish economy and low prices for some species slowed aquaculture growth in 1991.

There were 448 active producers of which 396 reported sales in 1991. The tropical fish segment, as in 1987 and 1989, continued to dominate Florida's aquacultural industry. There were 193 active growers of tropical fish accounting for \$32.8 million, 60 percent of total 1991 sales. Aquatic plants with 79 growers and \$9.9 million net sales were second in value. Alligators with 42 active growers contributed \$4.4 million. Oysters and clams valued at \$2.6 million were sold by 53 growers. Sixty-two catfish growers contributed \$2.0 million, sport/game fish totaled \$0.8 million and tilapia fish reached \$0.6 million. All other aquatic sales totaled \$1.4 million from 10 growers.

The survey also identified 41 others expecting to produce aquacultural products for sale in 1992 or later. The largest increase is expected in tropical fish and oysters with 9 new growers each, followed by aquatic plants with 8 additional growers. There are 6 new tilapia fish growers and 5 new sport/game fish producers with intentions to have sales in 1992. Among other species there are 10 other operations expected to have aquatic production for the first time in 1992 or later.

Aquaculture Value of Sales Florida, 1991



Based on survey findings, production of tropical fish, alligators, tilapia, aquatic plants, and clams will show slight increases in 1992. Tropical fish production is already well established in Florida, with orderly growth expected to continue. Overall, the aquacultural industry will likely continue substantial growth and development in Florida, with its mild climate and vast waterways. However, some hindrances to expansion include obtaining finances, government regulations, no market for production, and problems with pilferage.

TROPICAL FISH SALES REACH \$32.8 MILLION IN 1991

Net sales from both egg layers and livebearers totaled \$32.8 million from 193 growers during 1991, down nearly \$1 million from 1989 but \$11 million above 1987. Egg layers contributed \$15.1 million in net value while livebearers totaled \$17.7 million. Egg layers imported for immediate resale were valued at \$2.9 million in 1991, while the value of livebearer imports was \$4.2 million. Combined imports were up 23% from 1989. Purchases from other growers totaled \$9.4 million in 1991. Net sales do not include value of imports or value of purchases from other

growers. Producers used 54.1 million square feet of water surface area. Sixty-eight percent of the water surface was used for growing livebearers and the remaining 32 percent was for egg layers. This reflects some shifting from egg layer type to livebearers since 1989.

Tropical fish includes both egg layers and livebearers sold commercially for ornamental use. Some of the more prominent species are guppies, mollies, swordtails, variatus, platies, tetras, gouramies, goldfish, cichlids, barbs, and tropical catfish. Fish harvested from the wild are not included in this survey.

Tropical fish production is centered in Hillsborough and Polk counties with smaller concentrations in Dade and Palm Beach counties. Current growers expect to use 2 percent more water surface area this year than they used in 1991. In addition, there are 9 new growers expecting to produce tropical fish this year or later.



AQUACULTURE SALES OUTLETS

Nearly 80 percent of the egg layer tropical fish were sold to wholesale/broker type firms or to other producers. Another 16 percent of the egg layers were sold to retailers. Nearly 55 percent of the livebearing tropical fish were sold to wholesalers or to other producers, while 38 percent were sold directly to retailers. Egg layers exported constituted 4.5 percent while 6.9 percent of livebearers were exported.

Almost 40 percent of aquatic plants were sold to wholesale firms while 20 percent were sold direct to consumers. Over 24 percent were sold to retailers and nearly 13 percent of aquatic plants were sold to the export market. Clam sales to wholesalers, processors, etc. totaled 46 percent, and 45 percent went to retailers and consumers. Fifty-one percent of the oysters were sold to wholesalers and 45 percent were sold to retailers and consumers. Over 47 percent of the alligator hides were sold to processors (tanners) and nearly 46 percent were exported to other countries. Seventy-one percent of the catfish sold for food went to processors, while 29 percent were sold through other outlets which include retailers, wholesalers, and for-fee fishing. Over 90 percent of the fingerlings, stockers, etc. were sold to other producers.

AQUATIC PLANTS TOTAL \$9.9 MILLION IN 1991

Net sales from aquatic plants reached \$9.9 million during 1991. These sales were made by 79 growers. This compares with sales of \$7.0 million reported by 44 growers in 1989. Aquatic plants include plants for aquariums, watercress for food, and farm produced plants used in wetland restoration. Sales do not include harvest from the wild or purchases from other growers. Eight new growers are expected to produce aquatic plants in 1992.

TROPICAL FISH AND AQUATIC PLANTS, FLORIDA 1991

Specie	Number of growers	Water surface		Value of sales 1991
		1991	1992 1/	
	Number	1,000 sq. feet		1,000 dollars
Egg layers	148	17,248	17,793	15,077
Livebearers	124	36,822	37,211	17,722
Total				
Tropical fish	193 2/	54,070	55,004	32,799
Aquatic Plants	79	14,427	14,552	9,869

1/ Includes area only for growers having sales in 1991.

2/ Total reflects some growers with both egg layers and livebearers.

PERCENT OF SALES BY OUTLET, BY SPECIE, FLORIDA, 1991

Specie	Ex- port	Other pro- duc- ers	Re- tailers	Con- sumers	Pro- ces- sors	All 1/ others	All types
Percent							
Tropical fish:							
Egg-							
layers	4.5	17.2	15.7	--	--	62.6	100.0
Live-							
bearers	6.9	10.3	38.4	--	--	44.4	100.0
Aquatic							
plants	12.9	2.3	24.5	20.4	--	39.9	100.0
Clams	5.6	3.4	25.1	20.3	11.3	34.3	100.0
Oysters	--	2.9	26.3	19.0	0.8	51.0	100.0
Alligators							
(hides)	45.9	0.5	--	--	47.4	6.2	100.0
Catfish							
Food	--	3.8	8.3	6.0	71.0	10.9	100.0
Other	--	90.5	2.0	--	--	7.5	100.0

1/ Wholesalers, brokers, distributors, etc.

CATFISH PRODUCTION STEADY--TOTAL \$2.0 MILLION

During 1991 catfish sales totaled \$2.0 million from 62 growers. Catfish were produced from 864 acres of water surface. These same growers expect to increase water area to 903 acres for production in 1992. In addition, there are 4 other growers with intentions to produce catfish in 1992. For comparison, sales reported by 70 growers in 1989 amounted to \$1.9 million. Catfish production is concentrated in north Florida and the Panhandle.

Catfish sold for food in 1991 totaled 1,853,000 pounds. This is over one third more than the pounds sold for food in 1989. Value of sales for food in 1991 was \$1.7 million for an average price of 90 cents per pound, 24 cents per pound less than in 1989. Growers received \$288,000 from sales of fingerlings and stocker size fish.

ALLIGATOR SALES DECLINE TO \$4.4 MILLION

Sales of both alligator hides and meat during 1991 declined slightly from 1989 to \$4.4 million. Forty-two growers sold 19,900 hides for an average price of \$179 per hide or a total of \$3.6 million. Due to low prices some growers delayed butchering or still hold hides in their inventory until prices improve. Overall, the number of hides sold in 1991 increased 24 percent from 1989, however, value per hide declined by \$40. Producers also sold 163,000 pounds of meat, about 8 pounds per gator for an average of \$5.05 per pound or a total of \$0.8 million. Averages are based on unrounded data.

The 42 active growers reported a total inventory of 114,500 as of February 1, 1992. This compares with 91,800 on hand February 1, 1990. This suggests continued growth in hide sales, especially if prices improve.

COMMERCIAL ALLIGATOR INVENTORY BY TYPE, FLORIDA, FEBRUARY 1, 1992

Growers	Brood stock	Hatchlings	All other	Total
Number				
42	7,000	42,700	64,800	114,500

OYSTER SALES TOTAL \$1.4 MILLION

During 1991, Florida growers sold oysters valued at \$1.4 million--up from \$1.1 million in 1989. There were 54,200 bushels of oysters sold by 23 producers. The average price was \$25.34 per bushel. In addition, 9 other producers were expecting to begin production in 1992 or later. This will help increase future oyster production in Florida. According to the National Marine Fisheries Service, \$8.2 million worth of oysters were harvested from open or public waters off the coast of Florida in 1991. Seeding of oysters is expected to increase. Correction: Reports for survival of seeds to harvest averaged 53 percent.

CLAM PRODUCTION ROSE TO \$1.2 MILLION

During 1991, sales of clams produced by Florida growers totaled \$1.2 million--up from \$1.0 million in 1989. The 41 growers sold 8,833,000 clams for an average of 13.4 cents per clam. There are 4 additional growers expecting to produce clams in 1992 or later. The National Marine Fisheries Service reports sales, including both grower produced and open harvest, as \$2.1 million in 1991. Production is centered along the east central and northeast coastal counties.

Intentions to seed in 1992 are expected to increase sharply. Survival rate to harvest was reported to average about 58 percent, no change from 1989.

NUMBER OF CLAMS AND OYSTERS SEEDED BY YEAR SEEDED, FLORIDA

Year seeded	Clams	Oysters 1/
Thousands		
1990	46,620	9,693
1991	37,180	4,561
1992 intentions	108,350	11,620
Survival to harvest	Percent 58	53 2/

1/ Many growers do not seed oyster beds. They spread shells around in the leased area and oysters from the wild lay eggs on the shells. Thus, the relatively low amount reported as seeded. 2/ Corrected.

TILAPIA AND SPORT/GAME FISH TOTAL \$1.4 MILLION

During 1991, tilapia sales totaled \$572 thousand and sport/game fish amounted to \$792 thousand for a total of \$1.4 million. Seventeen sport/game fish and 16 tilapia growers reported sales in 1991.

OTHER AQUATICS TOTAL \$1.4 MILLION

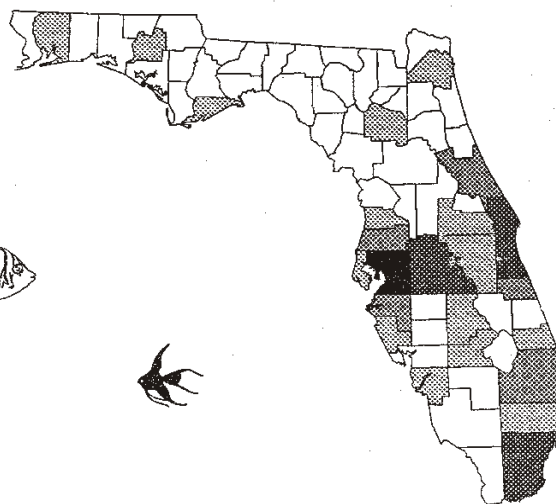
During 1991, sales of other aquatics totaled \$1.4 million. Other aquatics include crawfish, fresh water shrimp, eels, and other minor aquatics. Production came from 1,491 acres of water surface used by 10 growers. There are 2 new growers expecting to produce some of the above items in 1992 or later.

CATFISH, ALLIGATORS, OYSTERS, CLAMS, AND OTHER AQUATICS, FLORIDA, 1991

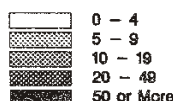
Specie	Number of growers	Water surface		Value of sales 1991
		1991	1992 1/	
Catfish:	Number	Acres		1,000 dollars
Food	55	752	785	1,667
Other	15	112	118	288
Total	62 2/	864	903	1,955
Alligators:				
Hides	--	--	--	3,569
Meats	--	--	--	824
Total	42	404	415	4,393
Oysters	23	1,163	1,163	1,373
Clams	41	387	502	1,183
Sport/Game fish	17	96	121	792
Tilapia	16	124	190	572
Other Aquatics	10	1,491	1,517	1,427
Total	184 3/	4,529	4,811	11,695

1/ Includes area only for active growers in 1991. 2/ Total reflects some growers with both food type and other. 3/ Total reflects some growers with more than one specie.

ACTIVE AQUACULTURE PRODUCERS Florida, 1991



Number of Producers



Total: 448

CAUSE OF AQUACULTURE DEATH LOSS

Over half of the death loss for tropical fish was caused by predation and disease. Over 60 percent of the loss for clams and oysters was due to poachers or predation. Water quality accounted for about 63 percent of losses of catfish for food and 56 percent of losses of fingerling, stockers, etc. Other significant causes of catfish loss were weather, disease, etc. Alligator loss was due primarily to adverse weather and predation. Water quality, disease, and predation caused 56 percent of tilapia loss, while over 60 percent of the loss for sport/game fish was due to water quality and disease.

CAUSE OF DEATH BY SELECTED AQUACULTURE SPECIES, FLORIDA, 1991

Specie	Water quality	Pre- dation	Disease	Other	Total
Percent					
Tropical fish:					
Egglayers	11.4	24.5	32.0	32.1	100.0
Livebearers	12.4	23.9	28.1	35.6	100.0
Aquatic plants	7.0	4.0	26.6	62.4	100.0
Clams	38.1	41.5	0.9	19.5	100.0
Oysters	20.0	19.1	6.2	54.7	100.0
Alligators	--	12.9	9.3	77.8	100.0
Catfish:					
Food	62.7	7.2	18.8	11.3	100.0
Other	56.0	15.0	15.0	14.0	100.0
Tilapia	16.7	18.8	20.8	43.7	100.0
Sport/game fish	30.0	22.7	30.5	16.8	100.0

RACEWAY AND TANK CULTURE

Water volume for the 90 producers reporting raceway and or tank culture totaled 18.7 million gallons with a daily exchange rate of 53 percent.

AQUACULTURE LABOR

Florida aquaculture operators reported working an average of 40 hours per week on their operations. Operators in Hillsborough, the leading county with a heavy concentration of tropical fish, averaged 51 hours per week. Brevard County, with a heavy concentration of producers of clams, averaged only 22 hours per week.

Aquacultural producers employed 884 full-time workers and 235 part-time workers in 1991. In addition, there were 262 unpaid workers--primarily family members--reported in the survey.

AQUACULTURE LABOR REQUIREMENTS, FLORIDA, 1991

State	Number of farms and workers					
	Unpaid		Paid full time		Paid part time	
	Farms	Workers	Farms	Workers	Farms	Workers
Total	174	262	173	884	110	235